

### REMARKS

Applicants thank Examiner Mark Rosenbrum for the courtesies extended to the undersigned during the telephone interview of July 29, 2009. A summary of the telephone interview is found in the Interview Summary mailed July 30, 2009.

Claims 23, 24, and 26-43 are pending in the application. Claims 30-43 are withdrawn as being directed to non-elected inventions. No claims are allowed or indicated allowable. This amendment cancels claim 26 without prejudice to eliminate issues, and amends claims 23, 27 and 29 to more positively recite Applicants' patentably novel powder processing method. More particularly, claim 23 is amended to include the subject matter of dependent claim 26, and claims 27 and 29 previously dependent on claim 26, are now dependent on claim 23. Applicants respectfully submit that the amendments to claims 23, 27 and 29 do not require a new search.

Claims 23, 24, and 27-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over the admitted prior art (hereinafter also referred to as "APA") in view of Japanese Unexamined Patent Application Publication No. 63-283767 (hereinafter also referred to as "Japanese '767"). The Office Action alleges that the APA is the process discussed early in the specification, and states that the process discussed does not include the effecting of an excitement treatment, resulting in poor coagulation of the powder. The Office Action continues by alleging that Japanese '767 solves this problem by microwaving the powder during treatment and concludes by alleging that the limitations of the dependent claims are found in APA or would have been obvious process steps only once the basic process was known.

Applicants respectfully traverse the rejection of claims 23, 24, and 27-29 under 35 U.S.C. §103(a) as being unpatentable over the APA in view of Japanese '767; however, to eliminate this issue, claim 23 is amended to include the subject matter of claim 26, and claims 27 and 29 are amended to depend from claim 23. Support for the amendments to claims 23, 27 and 29 is found, among other places, in the pending claims. Based on the forgoing, Applicants respectfully request admission of the amendments to claims 23, 27 and 29, and consideration of claims 23, 24 and 27-29.

Enclosed with this Amendment is a courtesy copy of an English translation of Japanese '767. The English translation was provided by our Japanese Associates.

The Office Action, in response to the arguments provided in the Amendment

filed May 19, 2009, states that while Applicants' argument that the claimed treatment is done by plasma discharge while the prior art shows a microwave treatment is true, the specification states that any type of electrical treatment may be used, e.g., page 5, paragraph 4 of the application, and concludes by alleging that the substitution of microwave with plasma discharge would have been well within the scope of one skilled in the art since plasma discharge is a known electrical treatment. During the above-mentioned telephone interview, the undersigned brought attention to the fact that the statement on page 5, paragraph 4 is a feature of Applicants' invention and was not shown to be in the prior art. Applicants respectfully submit that a disclosure by Applicants of Applicants' invention, and not in the prior art, is not prior art to Applicants.

Consider now the amendment to claim 23. Amended claim 23 recites a powder processing method by:

effecting an excitement treatment on processing target powder for providing an excitation energy to the processing target powder by discharge plasma while effecting a mechanical treatment on the processing target powder for the activation thereof by applying a compressive force and a shearing force thereto as mechanical forces; and

during the mechanical treatment and the excitement treatment, another substance is caused to come into contact with the processing target powder, so that the another substance is compounded with the processing target powder to obtain a compound powder.

Applicants respectfully submit that "discharge plasma" is a special type of electrical treatment. More particularly, the discharge plasma represents a state in which a voltage is applied between electrodes placed in the air and then the voltage exceeds a certain value to break an insulated condition and produce a conduction phenomenon. More particularly, the discharge plasma represents a state in which an electron accelerated in a high field collides with an air molecule and then is discharged from the air molecule to be ionized. In a macroscopic view, the sum total of the electric charge becomes zero in this state. With the discharge plasma, a substance may be treated without generating much heat. Further, the discharge plasma allows an electron with high energy to be produced to produce an ion and a radical. Various chemical reactions are caused by the ion or radical. For example, it is known that a reaction of removing a gaseous contaminated substance is caused.

The present invention relates to the method of manufacturing the compound powder effectively by exciting the entire processing target powder by the mechanical treatment and the excitement treatment to allow the another substance to be compounded with the processing target powder quite satisfactorily. In particular, the present invention provides the method of exciting and treating the processing target powder by the discharge plasma, which allows the processing target powder to be treated without being heated. Thus any material which is degraded or decomposed by heat can be compounded.

Further, according to the present invention using the discharge plasma, the surface of the processing target powder is purified and activated by the reaction of removing the gaseous contaminated substance noted above. In addition, since the mechanical treatment is performed for applying the compressive force and the shearing force to activate the processing target powder concurrently with the excitement treatment by the discharge plasma, the powder particles scrape against each other to renew the surfaces of the particles. This promotes the reaction of removing the gas-contaminated substance by the discharge plasma. As a result, the processing target powder is bonded solidly with the another substance to produce the compound powder of good quality.

On the other hand, the invention in accordance with Japanese '767 relates to techniques for heating a processing target object while pulverizing the target object by a heating body thereby to make the particle sizes of the target object uniform and also make the physical properties of the target object uniform by performing precise heating control.

In short, Japanese '767 discloses the treatment by the microwaves for rotating or oscillating charged particles or electrode dipoles present in a substance to heat the substance from the inside rapidly and uniformly.

As noted above, Japanese '767 only discloses the techniques relating to the microwave heating for heating the target powder by microwaves. Even if such microwave heating is performed in the present invention instead of the excitement treatment by the discharge plasma, the effects of the present invention noted above cannot be achieved. Thus, the discharge plasma disclosed in the present invention is completely different from the microwaves disclosed in Japanese '767.

In addition, as compared with the invention of Japanese '767 relating to the microwave heating, the present invention can provide unique effects which cannot be achieved by the microwave heating by selecting the excitement treatment through the

discharge plasma, in particular among the numerous excitement treatments.

For the above reasons, Applicants respectfully submit that it is not easily conceivable from Japanese '767 to use the discharge plasma in the present invention since Japanese '767 only discloses the invention relating to the microwave heating.

Further, APA neither discloses nor suggests "effecting an excitement treatment on processing target powder for providing an excitation energy to the processing target powder by discharge plasma while effecting a mechanical treatment on the processing target powder for the activation thereof by applying a compressive force and a shearing force thereto as mechanical forces, and during the mechanical treatment and the excitement treatment, another substance is caused to come into contact with the processing target powder, so that the another substance is compound with the processing target powder to obtain a compound powder."

Based on the forgoing, Applicants respectfully submit that the present invention is not conceivable by improving APA in view of the discussion of Japanese '767, and Applicants respectfully request withdrawal of the rejection of claims 23, 24, and 27-29 under 35 U.S.C. §103(a) as being unpatentable over APA and Japanese '767. Further, Applicants respectfully request allowance of claims 23, 24, and 27-29.

Applicants respectfully submit that this Amendment is a sincere effort to place this application in condition for allowance. In the event issues remain, the Examiner is invited to call the undersigned to discuss those issues before further action is taken on the case.

Respectfully submitted,  
THE WEBB LAW FIRM

By



Donald C. Lepiane  
Registration No. 25,996  
Attorney for Applicants  
436 Seventh Avenue  
700 Koppers Building  
Pittsburgh, PA 15219  
Telephone: (412) 471-8815  
Facsimile: (412) 471-4094  
E-mail: webblaw@webblaw.com